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STATISTICAL ANALYSIS

OF CASES OF

ACUTE AND SUBACUTE RHEUMATISM,

CHIEFLY IN REFERENCE TO THE

PROPORTION OF CARDIAC COMPLICATIONS.

BY

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Reprinted from the Clinical Society's Transactions, Vol. II.

LONDON:

PRINTED BY

SPOTTISWOODE & CO., NEW-STREET SQUARE, FARRINGDON STREET
AND PARLIAMENT STREET, WESTMINSTER.

1869.



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THE following report includes all the cases of acute and subacute rheumatism of which I possess notes, but not all those treated by myself, during the period over which it extends; for some cases were not fully reported, and the ward books containing the records of others have been lost. The cases analysed may, however, be taken as fairly representing the whole of those treated. They are all cases which would be included under the general designation of rheumatic fever; and, though the terms acute and subacute are employed, these must be understood as referring only to the greater or less amount of local inflammation and of constitutional disturbance, no cases of chronic rheumatism or of simple rheumatic pain with slight general disorder, being included in the series.

The collection of cases embraces three sets, which, for reasons which will be afterwards apparent, I have thought it better to subject to separate analysis.

1. A series of 21 cases treated at the Royal Free Hospital from September 1846 to the same date of 1849.

2. A series of 52 cases treated at St. Thomas's Hospital, before its removal from the old site at London Bridge, from November 1851 to April 1862.

3. A series of 73 cases treated at St. Thomas's Hospital, since the establishment has been at the Surrey Gardens, from October 1862 to March 1868.

Of these three series there are separate reports, and finally an abstract is given of the general results of the whole of the 146 cases taken together.

Abstract of Cases of Acute and Subacute Rheumatism treated at the Royal Free Hospital from Sept. 1846 to the same date 1849.

The total number of cases of acute and subacute rheumatism treated at the Royal Free Hospital from Sept. 1846 to the same date of 1849 was 21.

Of these were males 12—57·1 per cent.
 „ females 9—42·8 „

The mean age of the males was 24·5—the extreme ages being 4 and 14 and 31 and 47. The mean age of the females was 26·8—the extreme ages 16 and 17 and 39 and 48. Of the whole of the cases 6 are stated never to have had any previous attack of rheumatism; in 5 there had been one or more previous attacks; and in 10 the reports are defective on this point, but in by far the majority it may safely be concluded that enquiry was specially made and answered in the negative.

The date of the previous attacks was from a few months to 14 or 15 years before that for which the patient came under treatment; and in some cases there had been only one previous attack, in others several.

In 12 cases the patients had been suffering from the rheumatic symptoms more or less severely for periods varying from 2 days to a week.

„ 1 case the patient had been ill	2 weeks;
„ 1 „ „ „	2 or 3 weeks;
„ 3 cases „ „	3 weeks; and
„ 1 case the patient had been ailing	2 months;
„ 1 „ „ „	4 months;
„ 1 „ „ „	for a considerable time, but worse
	6 days; and
„ 1 „ the patient had old disease, with recent rheumatic symptoms of which the duration was not ascertained.	

The treatment to which the patients were subjected varied in different cases: that most commonly adopted was the employment of colchicum in small doses, with aperients, alkalies, or iodide of potassium. In some cases the tincture of aconite was used; and, when there were cardiac symptoms, mercurials with opium, generally in the form of Dover's powder, and cupping and counter-irritation, were had recourse to. In two cases the patients were under the influence of mercury when admitted, and cardiac symptoms were then beginning to develop themselves. The external remedies consisted of baths, packing, and local applications. After the urgent symptoms were subdued, quinine and iron were very generally given.

The results were as follows:—

The acute cases were 11 in number, or 52·3 per cent.
The subacute „ 10 „ 47·6 „

Of the 11 acute cases, 5 were males and 6 females.

Of the males one, and of the females two presented no signs or symptoms of cardiac affection, and one male displayed slight signs only. Regarding the latter as healthy, the heart was unaffected in 4 cases, or in 1 case in 2·7, or 36·3 per cent.

Of the other cases had pericarditis males 0, females 1;
 " " endocarditis only " 3 " 3.

The cases of recent cardiac complication were, therefore, 7 in number, or 1 case in 1·5, or 66·6 per cent.

Of the 10 subacute cases, 7 were males and 3 females.

Of these were wholly free from signs or symptoms of cardiac affection, male 1, female 0.

Had slight signs only, males 2, female 0.

Regarding the latter as healthy, the cases uncomplicated by heart affection were, therefore, 3 in number, or 1 case in 3·3, or 30 per cent.

Of the remainder had peri- and endocarditis, males 1, females 1;
 " " endocarditis only " 2 " 2;
 " " old cardiac disease " 1 " 0.

The number of cases in which cardiac complications existed was therefore 7, or 1 case in 1·4, or 70 per cent.

Taking both series of cases together—

4 cases were entirely free from cardiac affection;

3 " had only slight signs, and may be regarded as free.

The number of uncomplicated cases was thus 7, or 1 case in 3, or 33·3 per cent.

Of the other cases—

1 had pericarditis only;

2 " peri- and endocarditis;

10 " endocarditis only; and

1 " old disease only.

The total number in which cardiac affection occurred being thus 14, or 1 case in 1·5, or 66·6 per cent.

If the case in which there was old disease be not calculated, the cases of recent heart complication only are 13, or 1 case in 1·6, or 61·9 per cent. In one of the cases of peri- and endocarditis there was also old disease, the sequence of a previous attack of rheumatism of which the date was not ascertained. It is probable also that in other cases in which there was marked cardiac disease, there may have been recent rheumatic symptoms, and that these may have escaped enumeration, from the cases being reported only as cardiac.

The mean age of the patients with recent cardiac complication did not materially differ from that of the other patients, being in males 23·3 years, and in females 22·3. Of the cases in which recent cardiac complication occurred, 9 are reported or may be inferred to have been recent or first attacks, and in 4 the patients had previously suffered from rheumatism.

Of the 13 cases of recent heart affection—

In five the symptoms and signs were present to a more or less marked degree at the time of the patients' admission into the hospital;

In three they were reported two days after, when the first notes were taken;

In one they commenced two days after admission;

„ two „ three days after;

„ one „ ten days after; and

„ one „ twelve days after.

Thus in 8 cases the cardiac complications may be inferred to have been established at the time of the patients' admission; while in 5 they came on while they were under treatment.

In addition to these complications, two patients suffered from ague: in one of which there was endocarditis and a large abscess found in the popliteal space; in the other there was pneumonia, the heart being free. In a third case, in combination with endocarditis there was erysipelas, with serious head affection and abdominal disorder. In a fourth, in which there was also endocarditis, there was jaundice and profuse diarrhoea.

In all these cases but one the patients recovered from the rheumatic attacks more or less completely. In that instance, a female, thirty-nine years of age, had subacute rheumatism with pericarditis and renal disease, and died five days after admission; and the heart was found to be the seat of old disease of the aortic and mitral valves. The occurrence of rheumatism previously is not mentioned.

In another case of pericarditis, occurring in an attack of acute rheumatism in a female of sixteen, the symptoms were coming on at the time of the patient's admission on the second day of illness, and they had entirely subsided five days after, and she was discharged cured eleven days after. The occurrence of a former attack is not reported.

In a third case of peri- and endocarditis, in an attack of subacute rheumatism in a male æt. 18, who had not previously had rheumatism, the symptoms were also commencing at the time of the patient's admission after three weeks' illness; and the pericarditic signs subsided, but an endocarditic murmur remained at the time of discharge twenty-five days after. The patient had been under treatment nine days before his admission into the hospital, and was then under the influence of mercury.

In the cases of endocarditis the result was as follows :—

In a case of subacute rheumatism, in a female æt. 28, there was palpitation at the time of admission after two weeks' illness, and the murmur was loudly heard two days after, and continued still audible at the time of discharge thirty-one days after. No previous attack of rheumatism is mentioned.

In a case of acute rheumatism in a female æt. 19, the murmur was loudly heard two days after admission on the third day of illness, and was still noticed eleven days after, when the last notes were taken ; the patient being discharged on the twenty-seventh day.

In a case of acute rheumatism in a male æt. 14, who had not previously had rheumatism, the murmur was loudly heard two days after admission on the fourth or fifth day, and was still heard nine days after, the patient being discharged on the twenty-sixth day.

In a case of acute rheumatism in a male æt. 23, who had had two previous attacks in two years, the symptoms were commencing on admission after one week's illness, and were entirely gone sixteen days after ; the patient being discharged on the twenty-ninth day.

In a case of subacute rheumatism the symptoms were present on admission, after the patient had been ill four months, but worse recently, in a female æt. 17 ; the signs still remained at the time of discharge thirty-nine days after.

In a case of subacute rheumatism in a female æt. 27, in whom no previous attack is reported, the signs were commencing two days after admission on the seventh day, and had nearly disappeared sixteen days after ; the patient being discharged twenty-nine days after.

In a case of acute rheumatism in a male æt. 28, who had not had any previous attack, the symptoms were commencing three days after admission on the seventh day, and were still heard sixteen days after, and the patient was discharged in forty-four days.

In a case of subacute rheumatism in a male æt. 26, the signs commenced three days after admission on the second day of illness, and had entirely disappeared twenty-one days after ; the patient was discharged in twenty-three days ; the occurrence of a previous attack not being reported.

In a case of subacute rheumatism in a male æt. 31, the signs appeared ten days after admission after three weeks'

illness, and were entirely gone on discharge thirty-two days after. No mention is made of any previous attack.

In a case of acute rheumatism in a female æt. 27, in whom no previous attack is reported, the signs were commencing twelve days after admission, after one week's illness, and had entirely disappeared at discharge twenty-nine days after.

It thus appears, that of the thirteen cases in which there was recent cardiac complication, in one case of pericarditis the patient entirely recovered; in one of peri- and endocarditis the pericarditis was cured, while the signs of the endocarditis remained; and in one, in which there was pericarditis with old disease, the patient died. In ten cases of endocarditis, in five the symptoms and signs may be considered to have been entirely removed, while in five others they remained. Or taking the whole thirteen cases of recent cardiac affection, one, in which the patient had also old disease, proved fatal; in six the patients entirely recovered; and in six, though the symptoms were very greatly relieved, a murmur still remained at the time of discharge.

The average duration of residence of all the cases of rheumatism was 28·9 days, this estimate including the case in which the patient died on the fifth day from admission. The average duration of residence before convalescence was fully established was 23·5 days.*

Of the uncomplicated cases, the mean duration of residence was 28·5 days; the extremes being 17 and 25 days (in three cases), and 34 and 46 days.

The period which elapsed before convalescence was, in the same cases, 23·3 days; and the extremes 13 and 18, and 24 and 32 days (in two cases).

The duration of residence in the cases with recent cardiac complication only was 32·4 days, and the extremes 11 and 25, and 44 and 57 days.

The period of treatment before convalescence was, on the average, 24 days, and the extremes 6 and 21 (in two cases), and 32 and 39 days.

In two cases the patients had ague: in one with endocarditis and an abscess in the popliteal space; in the other with

* The case of old disease occurred in a boy æt. 6, who was admitted labouring under rh. s. ac., after six days of more active illness, and was discharged after a residence of ten days. Without this case the duration of residence would be 30·1 days. In one case, in a female, a murmur was heard which was regarded as anæmic.

pneumonia. The patients resided 26 and 48 days, and were convalescent in 19 and 35 days.

In two other cases with endocarditis there was cerebral and abdominal disorder and great prostration, and in one patient erysipelas, and the patients resided 32 and 23 days, and became convalescent in 18 and 20 days.

In one case, in which there was old cardiac disease, the patient was only ten days in the hospital; in the other, in which there was old cardiac and renal disease with recent peri- and endocarditis, the patient died in five days.

Abstract of Cases of Acute and Subacute Rheumatism treated at St. Thomas's Hospital, London Bridge, from November 1851 to April 1862.

Total number of cases reported is 52.

Of these were males	26,	or 50 per cent.
„ females	26 „	50 „

The mean age of the males was 23·6 years, the extreme ages being 12 and 15 (2) and 53 and 42.

The mean age of the females was 23·4, the extremes being 14 (2) and 16, and 52 and 48.

Of the whole of the cases sixteen are said never previously to have suffered from rheumatism, sixteen to have had one or more previous attacks, and in twenty no report is made on this point, but probably in nearly all enquiry was made and answered in the negative. In some cases there had been only one previous attack, in others several; and the attacks are said to have occurred from a few months to fifteen years previously.

The patients had been ill before admission into the hospital

In 17 cases for 7 days or less;
„ 12 „ 2 weeks;
„ 6 „ 3 „
„ 2 „ 5 „
„ 1 case for 6 „
„ 1 „ 2 months;
„ 4 cases for 3 „ ;
„ 1 case for 6 „

In one the patient had been seriously ill for 3 days, but previously ailing for 11 weeks.

In one for a week but ailing for 7 months.

In one for a year but suffering for 4 years.

In by far the largest proportion the cases were treated by small doses of iodide of potassium and colchicum with bicarbonate of potash. In some instances the bicarbonate and nitrate of potash were used ; two or three patients took only lemon juice ; and two were treated by large doses of quinine. The cardiac complications were relieved by the application of leeches, or more frequently blisters and poultices, and by the administration of mercury in the form of calomel or gray powder, with opium or Dover's powder.

The results were as follows:—

Of the whole of the cases were acute	21;
subacute	31.
Of the 21 acute cases were males	9=42·8 per cent.
	females 12=57·1 "
Of the 31 subacute "	males 17=54·8 "
" " "	females 14=45·1 "

Of the acute cases—

Had no complication	.	.	males	2	} 3;
"	"	.	female	1	
" slight symptoms only	.	.	male	1	} 2;
"	"	.	female	1	
" slight signs only	.	.	males	5	} 9;
"	"	.	females	4	
" slight symptoms and signs	.	.	male	1	} 2;
"	"	.	female	1	

thus making 16 or 76·1 per cent. in which the heart may be considered to have been free, or 1 case in 1·3.

Of the other cases, had peri- and endocarditis	. males	0,
" " "	. female	1;
" " endocarditis only	. males	0,
" " "	. females	4.

making 5 cases of recent complication or 23·8 per cent. or 1 case in 4·2.

Of the subacute cases—

Had no complication	.	. males	7	} 16;
" "	.	. females	9	
" slight symptoms only	.	. male	1	} 1;
" "	.	. females	0	
" slight signs only	.	. male	1	} 3.
" "	.	. females	2	

Regarding the latter as healthy, the uncomplicated cases were 20 or 64·5 per cent. or 1 case in 5·5.

Of the others—

Had peri- and endocarditis	. males	4	} 6;
„ „	. females	2	
„ endocarditis only	. males	4	} 5;
„ „	. female	1	

making 11 cases of decided cardiac complication or 35·4 per cent. or 1 case in 2·8.

In none of the cases is old disease reported to have been present alone, but it is probable that old cardiac disease may have existed in several cases in which there were slight rheumatic symptoms, and having been classed under the former head cannot readily be added to the collection of cases of rheumatism.

Taking the two sets of cases together, of the whole 52—

Had no symptoms or signs of cardiac disease	19;
„ slight symptoms only	3;
„ slight signs only	12;
„ slight signs and symptoms	2.

making 36 uncomplicated cases or 69·2 per cent. or 1 case in 1·4.

Of the others—

Had peri- and endocarditis	. 7,
„ endocarditis only	9,

making 16 cases with recent cardiac complication, or 30 per cent. or 1 case in 3·2.

In addition, however, to the cardiac complications, in one case there was acute capillary bronchitis and in another scarlatina which was followed by pneumonia. In two cases the patients had œdema of one leg, probably from fibrinous deposit in the arteries; in two there were secondary symptoms; and in one case the patient laboured also under ague.

In all the cases the patients recovered more or less completely from the rheumatic symptoms, the results in reference to the cardiac complications being as follows: In one case endocarditis existed on admission after three months' illness. The patient, a female æt. 18, had rh. ac. and had never previously had rheumatism, and the signs were still heard 21 days after, and probably existed at the period of discharge 34 days after.

In a second case of rh. ac. in a female æt. 20, endocarditis existed at the time of admission on the fifth day of illness. The previous occurrence of rheumatism is not reported, and the murmur still existed at the time of the patient's discharge 91 days after.

In a third case of rh. s. ac., in a female æt. 23, endocarditis

is reported three days after admission in a case in which the patient had been previously ill for three months, and the symptoms had subsided on the patient's discharge 11 days after. The patient had had two previous attacks in 15 years.

In a fourth case of rh. ac., in a female æt. 17, peri- and endocarditis existed at the time of admission, in case in which the patient had had a relapse of three days' duration after 11 weeks of previous illness; a systolic murmur was still heard at the apex at the time of discharge 27 days after.

In a fifth case of rh. s. ac., in a male æt. 12, endocarditis existed at the time of the patient's admission on the tenth day of a first attack, and the murmur was still heard at discharge on the 48th day after.

In a sixth case peri- and endocarditis existed on admission after three weeks' illness, in a patient suffering from rh. s. ac., a male æt. 16, who had had a previous attack a year before, and the murmur remained 19 days after, and probably at discharge 44 days after.

In a seventh case endocarditic signs were noticed on admission, after a week's illness; the patient, a male æt. 20, suffered from rh. s. ac. He had had rheumatism 6 years before, and was discharged after 29 days, the state of the heart not being reported.

In an eighth case of rh. s. ac., in a male æt. 18, endocarditis came on five days after admission after two weeks' illness, and the patient had also pleurisy and pneumonia. He was discharged 40 days after, the state not being then reported. The patient had had two previous attacks in 12 years.

In a ninth case peri- and endocarditis were present at the time of the patient's admission, after six weeks of a first attack of subacute rheumatism, in a male æt. 17, and the signs had entirely disappeared on discharge 24 days after.

In a tenth case of rh. s. ac., in a female æt. 14, peri- and endocarditis and bronchitis existed at admission, after two weeks' illness, in a patient previously ill seven months, and the signs still existed at discharge 20 days after.

In the eleventh case of rh. ac., in a female æt. 19, endocarditic signs existed at the time of admission in a case in which the patient had been ill two months, and still existed at discharge 49 days after.

In the twelfth case of rh. ac., in a female æt. 16, the signs of endocarditis were present on admission after two weeks' illness, the occurrence of previous attack not being named; the signs had disappeared at discharge on the 62nd day.

In the thirteenth case of rh. s. ac., in a female æt. 15, peri- and endocarditic signs existed on admission, in a patient who had never previously had rheumatism, and who had been ill a week and ailing for a month. The murmur was still heard at discharge 49 days after.

In the fourteenth case the signs of peri- and endocarditis were commencing on admission on the seventh day of an attack of rh. s. ac., in a male æt. 16, and had disappeared on discharge on the 32nd day; the existence of previous attacks not being named.

In the fifteenth case of rh. s. ac., in a male æt. 23, endocarditic signs were noted at the time of admission after two weeks' illness, and had disappeared on discharge 12 days after; no mention of previous attack.

The sixteenth case, in a female æt. 30, peri- and endocarditis with pneumonia existed at the time of the patient's admission with a very slight attack of rheumatism. She had had two previous attacks in fourteen months. The endocarditic murmur was still heard at discharge thirty-one days after, but the pericarditic signs had entirely disappeared.

It thus appears that the cardiac complications were commencing, or actually present, in a more or less marked form, in all the cases but two at the time of the patients' admission into the hospital, and in these instances they appeared on the third and on the fifth day after. It further appears that they occurred in 4 cases, in which the patients had not had previous attacks of rheumatism; in 4 cases in which the patients had one or more previous attacks, at periods varying from one year to fifteen years; and in two cases in which the patients had been ill two months and seven months before admission. In 6 cases the existence of previous attacks is not named in the reports. As to the result of the sixteen cases, in 6 all signs of cardiac disease had disappeared before the patient left the hospital; in 8 the signs or symptoms or both still remained to a more or less marked extent; and 2 cases the state of the patients at the time of discharge is not reported, but probably the signs had not disappeared.

The mean period of residence in all the cases (excluding two, in one of which the patient was retained after the cure of the rheumatism for 62 days, in consequence of suffering from aguish symptoms; and another in which the duration of residence was 231 days, the patient had scarlatina followed by pneumonia and disease of the knee) was be-

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fore convalescence 21·5 days—the extremes being 5 and 8 days, and 38 and 44; and before discharge 33 days—the extremes being 6 and 8 days, and 56 and 62 days. The cases with cardiac complication remained on the average before convalescence 22·7 days and before discharge 37 days—the extremes being 8 and 10, and 62 and 91 days.

The mean age of all the patients without reference to sex is 23·5, and the mean age of those who presented cardiac complication is 18·3.

Abstract of Cases of Acute and Subacute Rheumatism treated at St. Thomas's Hospital, Surrey Gardens, from October 1862 to March 1868.

Total number of cases reported 73—

Of these were Males 40=54·7 per cent.
Females 33=45·2 „

Mean age males 23·1;

Extremes of age 10 and 14, and 35 (2) and 41.

Mean age females 21·1;

Extremes of age 11 and 14, and 38 and 50.

Of the whole of the patients—

Had had previous attacks of rheumatism . 26

Had not had any previous attack . 17

The attack had been of long duration (from 1 to 20 months) and never recovered from in 6 cases.

Existence of previous attacks is not stated in the reports in 22 cases.

Of the cases in which previous attacks had occurred :—

In 2 cases the patients had had one previous attack 18 months before.

In 1 case the patient had had one previous attack two years before.

In 2 cases the patients had had one previous attack three years before.

In 2 cases the patients had had one previous attack four years before.

In 1 case the patient had had one previous attack four or five years before.

In 1 case the patient had had one previous attack five years before.

In 1 case the patient had had one previous attack six years before.

In 1 case the patient had had one previous attack nine years before.

In 2 cases the patients had had one previous attack the time not being stated.

In 1 case the patient had had two previous attacks in two months.

In 1 case the patient had had two previous attacks in three years.

In 3 cases the patients had had two previous attacks in twelve years.

In 1 case the patient had had two previous attacks in thirteen years.

In 2 cases there had been two attacks, the time not being mentioned.

In 1 case there had been three attacks in seven years.

In 1 case there had been three attacks in nine years.

In 1 case there had been three attacks, the time not being named.

In one case there had been four attacks in eleven years, and in another case the patient had had several attacks, the time not being stated.

The immediate causes of the attacks were assigned in 32 cases. Of these in five the patients stated that they had taken cold from exposure to cold and damp, the period not being stated. In other cases the following causes were assigned :—

Exposure to draughts in his work.

Sleeping for some weeks in a damp and cold room into which the rain came.

Working as a navigator in a damp hole for a year.

Working in hot stoves and getting chilled after.

Working in hot-houses as a gardener and getting chilled after.

Repeatedly getting wet through.

Getting wet in going to his work in the morning, and allowing his clothes to dry on him, and the symptoms appeared that evening.

Exposure to wet and cold, and the symptoms appeared the same day.

Exposure to wet and cold at night, and the symptoms appeared the following day.

Exposure to cold in an empty house, and the symptoms appeared two days after.

One patient took a chill during the catamenial period, and the symptoms appeared two days after.

Two had been exposed to wet and cold a week before.

One had been exposed to wet and cold in washing a week before.

One had got wet a week before.

One took cold a week before.

One took cold nine days before.

One took cold eleven days before.

One got wet and let his clothes dry on him thirteen days before.

One got chilled two weeks before.

One took cold two weeks before.

One took cold in washing two weeks before.

One was exposed to cold and damp two weeks before.

One got wet through three weeks before.

Two took cold a month before.

One had had erysipelas of the head three weeks before.

One was constantly wet and cold during boisterous weather in the Baltic and in the voyage home for three weeks.

The duration of illness before admission was as follows :—

	2 days in	2 cases	} 26 in first week.
	3 "	5 "	
	4 "	1 "	
	5 "	5 "	
	6 "	4 "	
	7 "	9 "	} 14 in second week.
	8 "	2 "	
	9 "	3 "	
	10 "	1 "	
11 or	12 "	1 "	
	14 "	7 "	} 7 in third week.
17 or	18 "	1 "	
	21 "	6 "	
	1 month	4 "	} 6 in fourth week.
	1 " worse 3 days . . .	1 "	
	1 " " 2 weeks . . .	1 "	
	6 weeks	1 "	} 3 in second month.
	7 " worse 5 days . . .	1 "	
	7 " " 2 weeks . . .	1 "	
	10 " " 5 weeks . . .	1 "	
	13 "	1 "	
	6 months	1 "	
	6 " worse 3 days in . .	1 "	
	6 " " 6 "	1 "	
	12 "	1 "	

15 months	worse	5 days .	. 1 case
18 "	"	1 week .	. 1 "
20 "	"	2 weeks .	. 1 "
4 years	"	1 month .	. 1 "

The treatment pursued consisted, in the greatest number of cases, in the employment of alkalis, the bicarbonate of potash alone or in combination with nitrate of potash; more rarely in the use of iodide of potassium and bicarbonate of potash, with very small doses of colchicum. Dover's powder, generally with small doses of calomel or gray powder, was frequently given at night; and for local application cotton wool was generally employed at the earlier part of the time, and latterly blisters were placed around the limbs above the affected joints. During convalescence quinine and iron were almost always given, and a liberal diet allowed. For the cardiac complications leeches, or more frequently blisters and poultices, and moderate use of mercurials were generally had recourse to.

The cases may be classed as follows :—

Acute rheumatism 19 cases :	Males .	7=36·8 per cent.
	Females	12=63·1 "
Subacute rheumatism 51 cases :	Males .	32=62·7 "
	Females	19=37·2 "
Acute rheumatism and scarlatina 2 cases :	Males .	0
	Females	2
Typhoid and acute rheumatism . . .	Male .	1

Of the cases of acute rheumatism—

Had no cardiac symptoms or signs . . .	Male .	1	} 3
	Females	2	
Had slight symptoms only . . .	Females	2	} 2
Had slight signs only . . .	Males .	0	
	Females	3	} 3
Had slight symptoms and signs . . .	Male .	1	
	Female .	1	} 2

It may therefore be inferred that there were without cardiac complication 10.

Of the others—

Had pericarditis	Males .	0	} 2
Peri- and endocarditis	Females	2	
Endocarditis	Males .	3	} 7
	Females	4	

It thus appears there were decided cardiac complications in 9, or 1 case in 2·1, or 47·3 p. c. (all recent).

Of the cases of subacute rheumatism—

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Had no cardiac symptoms or signs	Males . 10	} 15
	Females 5	
Had slight symptoms only	Males . 2	} 3
	Female. 1	
Had slight signs only	Males . 6	} 9
	Females 3	
Had slight symptoms and signs	Males . 0	} 1
	Female. 1	

May be inferred to have been without cardiac complications 28, or 54 p. c.

Of the others—

Had pericarditis	0	
Peri- and endocarditis	Males .	} 4
Endocarditis	Females 6	
	Females 5	} 11
Old disease	Males . 4	
	Females 4	} 8

The cases of decided cardiac complications were therefore 23, or 1 case in 2·2, or 45·09 p. c.

The cardiac complications were recent in 15 cases, or 1 in 3·4, or 29·4 p. c.

And old in 8 cases, or 1 in 6·3 or 15·6 p. c.

Taking the two series of cases together, 70 in number—

Were entirely free from cardiac complications 18, or 1 in 3·8, or 25·7 p. c.

Had slight symptoms or signs or both 20, or 1 in 3·5, or 28·5 p. c.

And regarding all these as healthy, were without complication 38, or 1 in 1·57, or 54·2 p. c.

Presented decided cardiac complication 32, or 1 in 2·18, or 45·7 p. c.

Of these being recent 24, or 1 in 2·9, or 32·2 p. c.

And old 8, or 1 in 8·7, or 11·4 p. c.

Of the cases of recent complication were cases of peri- and endocarditis 6,* or 1 in 11·6, or 8·5 p. c.

Were cases of endocarditis 18,† or 1 in 3·8, or 25·7 p. c.

The cases of acute rheumatism and scarlatina were both free from cardiac complication, as was also the case in which the patient had typhoid.

Taking the whole of the 73 cases, 21, or 1 case in 3·47, or 28·7 p. c. were entirely free and 20, or 1 in 3·6, or 27·3 p. c. had only slight symptoms or signs, making 41 uncomplicated cases, or 1 in 1·7, or 56·1 p. c., while 32 had decided complication, or 1 case in 2·28, or 43·8 p. c.

The following is an abstract of the cases of cardiac complication, and their result:—

* In 2, and probably 3, of these cases, there was also old disease.

† In 3 of these cases, however, there was probably also old disease.

1. Peri- and endocarditis present at the time of the patient's admission after being three weeks ill of an attack of rh. ac., in a male æt. 15. At the time of the patient's discharge, 23 days after, there still remained a slight prolongation of the first sound and some slight dullness.

2. Peri- and endocarditis, which came on the day before admission on the 11th or 12th day of a first attack of rh. ac., in a male æt. 25. Some dullness on percussion, and prolongation of the systolic sound still remained at the time of discharge on the 84th day.

3. Endocarditis present on admission on the eighth day of an attack of rh. ac., in a female æt. 21, and the signs had entirely disappeared at the time of discharge on the 33rd day.

4. Endocarditis present on admission on the eighth day of an attack of rh. ac., in a female æt. 20. Scarcely any remains on discharge on 29th day.

5. Endocarditis present on admission on the fifth day of a second attack of rh. s. ac., the first having occurred four or five years before, in a male æt. 19. The signs entirely gone at discharge on the 37th day.

6. Endocarditis commencing on admission after three weeks of an attack of rh. s. ac., there having been two previous attacks in two months, in a male æt. 18. Slight prolongation of systolic sound at time of discharge on 41st day.

7. Endocarditis with old disease present on admission after two weeks of an attack of rh. s. ac., a previous attack having occurred five years before, in a male æt. 27. The signs remaining at discharge on the 25th day.

8. Peri- and endocarditis, and probably old disease, present on admission after having had symptoms of rh. s. ac. for 13 weeks. The patient a male æt. 16. A previous attack 18 months before, and the pericarditic signs came on 11 days after admission; and had entirely gone, but a systolic murmur remained at time of discharge, 111 days after.

9. Endocarditis on admission on fifth day of an attack of rh. ac., but previous attack four years before. The patient, a male æt. 18, had been constantly wet and cold, while at sea in the Baltic during a gale of wind, for three weeks. The signs remaining, probably, at discharge 77 days after.

10. Endocarditis and capillary bronchitis present on admission after three weeks of an attack of rh. ac., the patient having had an attack 18 months before, in a female æt. 21. Murmur slightly heard at discharge on 91st day.

11. Old disease in a male æt. 16, ill 20 months, worse two weeks. Rh. s. ac. Discharged in 125 days.

12. Pericarditis, pleuritis, and old disease, in a male æt. 41, suffering from cardiac symptoms for a year. Rh. ac. of 10 days' duration at time of admission, and, after being in the hospital, 7 days; there were found, on post-mortem examination, recent pericarditis, pleuritis, and bronchitis, with old aortic and mitral valvular disease. The heart weighed $21\frac{1}{4}$ oz. Av.

13. Endocarditis present on admission after a week's illness. Rh. s. ac. A previous attack three years before. Signs gone at discharge after 21 days. In a female æt. 20.

14. Endocarditis in a case of rh. s. ac., admitted after one month's illness, but ailing four years. The patient, a female æt. 18, had had a previous attack seven years before. The signs existed at the time of the patient's admission, and had entirely disappeared before her discharge on the 27th day.

15. Old disease, in a male æt. 22, suffering from symptoms of rh. s. ac. The patient had had three previous attacks in eight years. Discharged 72 days.

16. Endocarditis in a case of rh. s. ac., admitted after three weeks' illness. The patient, a female æt. 18, had had an attack three years before, but had been subject to palpitation for six years. The signs existed at the time of admission, and had disappeared before discharge, and been replaced by an anæmic murmur. Duration of residence 50 days.

17. Endocarditis on admission. After a week's severe illness, during at attack of rh. s. ac., in a female æt. 21, who had had three previous attacks in seven years. Signs gone at discharge after 39 days.

18. Old disease, in a case of rh. s. ac., in a female æt. 17, who had had a previous attack three years before. The illness was of one month's duration at time of admission, and the signs remained at discharge after 63 days.

19. Old disease, in a case of rh. s. ac., in a female æt. 20, who had never had rheumatism before. The attack had existed for 15 months, and the symptoms had been more severe for five days. The cardiac disease might probably have originated in injury. The duration of residence was 53 days.

20. Old disease, in a case of rh. s. ac., in a female æt. 26, who had had several previous attacks. The illness was of six days' duration. The duration of residence was 49 days.

21. Endocarditis, in a case of rh. s. ac., in a male æt. 30.

The signs were present on admission, on the third day. The patient had had two previous attacks in 12 years. The signs had probably disappeared at discharge on the 20th day.

22. Peri- and endocarditis and pleuritis. In an attack of rh. s. ac., present on admission after a week's illness, in a male æt. 31, who had had two previous attacks in 12 years. At discharge, after 15 days, the pericarditic signs had entirely disappeared; but a systolic murmur remained at the apex.

23. Endocarditis appearing two days after admission after two weeks' previous illness, in a case of rh. ac. in a male æt. 22, who had had no previous attack. The signs were very slightly heard 26 days after, and there was some prolongation of the first sound but no murmur at discharge 45 days after admission.

24. Endocarditis on admission, in a case of rh. s. ac. after one year's illness, and a previous attack four years before, in a female æt. 17. Signs remaining at discharge after 47 days.

25. Old disease. In a case of rh. s. ac., in a female æt. 22, admitted after six months' illness, but worse for three days. The patient had had palpitation for six years. Convalescent from rheumatic symptoms in 12 days; discharged in 36.

26. Endocarditis present on admission, in a case of rh. ac., admitted after three weeks' severe illness. A previous attack nine years before. Signs still remaining at discharge after 40 days. In a male æt. 29.

27. Endocarditis, commencing on admission, in a case of rh. ac., in a female æt. 17, who had had no previous attack. Admitted after three weeks. Convalescent in 39 days, and signs gone before discharge after 63 days.

28. Endocarditis and old disease in a male æt. 15, who had had no previous attack, but had been ill three months. Discharged 86 days—rh. s. ac.

29. Old disease, in a male æt. 15, labouring under rh. s. ac., who had had a previous attack two years before, and had been ill six months, and worse six days. Discharged after 28 days.

30. Old disease in a case of rh. s. ac. of eighteen months' duration, but worse two weeks. The patient was a male æt. 17, and remained in the hospital thirty-seven days.

31. Peri- and endocarditis and old disease in a male æt. 15, who laboured under rh. s. ac., of six months' duration, but had not had any previous attack. The signs remained at discharge, after eighty-three days.

32. Endocarditis and old disease in a male æt. 21, who laboured under rh. ac., and had had several previous attacks in nine years. The symptoms had existed a month at the time of admission, and the patient remained thirty-one days.

It thus appears that of the twenty-four cases in which there was recent disease, in six the disease assumed the form of peri- and endocarditis, and in all but one of these cases the symptoms were present at the time of the patients' admission into the hospital. In one case they came on eleven days after admission. In two, and perhaps three, of these cases there was also old disease, and in one the patient died; in the other two signs of old disease remained at discharge. In three other cases the pericarditic signs disappeared, but there remained slight evidences of valvular defect at discharge.

Of the cases of endocarditis, eighteen in number, three had also old disease; in twelve, in which there was only recent disease, the signs were present at the time of the patients' admission; in two the symptoms were commencing at that time, and in one they occurred two days after admission.

In the three cases in which there was also old disease the signs remained at discharge; in two of the other cases they also remained, and probably also in a third; and in four they existed to a slight extent, while in six they had entirely disappeared, and in two had probably disappeared at the time of discharge. So that of the twenty-four cases, six and probably two others, making eight, were entirely cured; fifteen experienced more or less marked relief, and one patient died.

Of the cases in which recent or old cardiac complications existed, 32 in number, in 20 the patients are stated to have had one or more previous attacks of rheumatism; 2 are reported never previously to have suffered from rheumatism; and in 10 no mention is made of previous attacks, but probably in all these cases it may be concluded that enquiries had been made and answered in the negative.*

The other complications recorded as having occurred in this series of cases of rheumatism are—in two cases plumbism, in one capillary bronchitis, in one pleurisy, in two secondary syphilis, and in one an abscess in the neck. In two cases scarlatina occurred when the patient was beginning to be convalescent from rheumatism, and in one variola appeared under similar circumstances.

* In six cases the patients are reported to have had murmurs, regarded as anæmic, and in a seventh case a murmur existed which was also probably anæmic. Of these seven patients, six were females, the seventh being a boy fourteen years of age.

The duration of residence in the hospital of the whole of the cases, excepting that in which the patient died on the 7th day, was on the average 43·4 days.

The mean duration of residence of the cases unattended by cardiac complication was 37·3 days; the extreme periods being 14 (2) and 15 (2) days, and 60 and 87 days.

The mean duration of residence in the cases with cardiac complication was 51·9 days, the extremes being 21 and 25 days, and 91 and 111 days. In several of both series of cases the patients were, however, detained in the hospital for considerable periods after convalescence from rheumatism, in consequence of the occurrence of other complications.

Summary of the three sets of Cases.

			Ratio p. c.
Grand total, 146.	Males	78	53·4
	Females	68	46·5
Entirely free from cardiac complication		44	30·1
Having presented slight symptoms or signs or both		40	27·3
Free from serious complications		84	57·5
			or 1 case in 1·73
	Males	44	52·3
	Females	40	47·6
With cardiac complication, pericarditis, or peri- and endocarditis		16	10·95
			or 1 case in 9·1
Endocarditis		37	25·34
			or 1 case in 3·9
Recent cardiac complication		53	36·3
			or 1 case in 2·75
	Males	29	37·1
	Females	24	35·1
With old disease		9	6·1
	Males	5	
	Females	4	
With all forms of cardiac complication		62	42·4
			or 1 case in 2·3
Cases of acute rheumatism		54	36·9
	Males	22	40·7
	Females	32	59·2
Free from serious cardiac complication		33	61·1
			or 1 case in 1·62
	Males	14	63·6
	Females	19	59·3
With cardiac complication		21	38·8
			or 1 case in 2·57
Peri- and endocarditis		4	7·4
Endocarditis		17	31·48
	Males	8	36·3
	Females	13	40·6

24 *Analysis of Cases of Acute and Subacute Rheumatism.*

			Ratio p. c.
Cases of subacute rheumatism	92	.	63·01
	Males	56	60·8
	Females	36	39·1
Without serious cardiac complication	51	.	54·5
			or 1 case in 1·8
	Males	30	53·5
	Females	21	58·3
With cardiac complication	32	.	34·7
			or 1 case in 2·8
Peri- and endocarditis	12	.	13·04
Endocarditis	20	.	21·73
	Males	21	37·5
	Females	11	30·5
With old cardiac disease	9	.	9·7
	Males	5	
	Females	4	
With all forms of cardiac complication	41	.	44·5

Of the whole of the cases, 39 are reported never to have previously had rheumatic fever; and 50 had had previous attacks; and it may be inferred that in most of the other cases, where there is no distinct statement, in several of which, however, the disease was of long duration before admission, enquiry was made, but failed to elicit any history of previous attacks. If this be correct, the proportion of the whole in which previous attacks had occurred was 34·2 p. c.

Of the cases in which recent cardiac complication occurred, 25 out of 52 are said to have had previous attacks of rheumatism, or 47·1 per cent., and in several in which the patient had not previously suffered from rheumatism, the actual attack was of long duration before admission into the hospital.

Of the whole of the cases, in 44, or 83·01 per cent., the signs or symptoms or both, had occurred before the patients' admission, or were then commencing; and in 9 only, or 16·9 per cent., did they make their first appearance while the patients were actually under treatment. In several of the cases in which there was recent peri- or endocarditis or both there was also old disease.

The result in the recent cases of cardiac complication was as follows:—

In 18 cases the signs entirely disappeared; in 2 they probably disappeared, and in 2 the result was not reported, but the signs in these also probably disappeared, making 22 which may be regarded as having been cured; or 41·5 per cent.

In 29 cases, or 54·7 per cent., the signs are stated, or may be inferred, to have remained, in a more or less marked de-

gree, at the time of the patients' discharge; these embracing several cases of old disease and others of long duration before admission.

In 2 cases, or 3·7 per cent., the patients died; in both these there being pericarditis and old cardiac disease, and in one, also, renal disease with other complications.

TABLE I. SHOWING THE KIND AND PROPORTION OF CARDIAC COMPLICATION IN ACUTE AND SUBACUTE CASES, IN THE TWO SEXES.

	Total	Free from Cardiac Complication			With recent Cardiac Complic.			Old Disease
		Total	Entirely free	With slight Symptoms or Signs, or both	Total	Peri- and E.-carditis	Endo-carditis	
ACUTE CASES.								
Males	22	14	63·6 p.c.		8	36·3 p.c.		
	54	33	61·1 "		21	38·8 "	4	17
Females	32	19	59·3 "		13	40·6 "		
SUBACUTE CASES.								
Males	56	30	53·5 p.c.		21	37·5 p.c.		
	92	51	54·5 "		32	34·7 "	12	20
Females	36	21	58·3 "		11	30·5 "		5
								4
	146	84	57·5 p.c.	44	40	53 = 36·3 p.c.	16	37

TABLE II. SHOWING THE PROPORTION OF RECENT AND OLD CARDIAC COMPLICATION AT DIFFERENT AGES AND IN THE TWO SEXES.

	Grand Total	Males	Females	Free from Serious Complication			With recent Cardiac Complication			With old Disease			Total Cur. Com. of all kinds
				Total	Males	Females	Total	Males	Females	Total	Males	Females	
20 years and under	70	32	38	33	12	21	31	16	15	6	4	2	37
21 to 40 incl.	67	42	25	43	29	14	21	12	9	3	1	2	24
41 to 53 incl.	9	4	5*	8	3	5	1†	1	1
	146	78	68	54	44	40	53	29	24	9	5	4	62
Proportion of recent cardiac complication at all ages, 36·3 p.c.; of all kinds, 52·85 p.c.													
" " " at 20 years of age and under, 44·28 p.c.;													
" " " of all kinds, 35·82 p.c.													
" " " from 21 to 40 years of age incl., 31·34 p.c.													
" " " from 41 to 53 " " 11·11 "													

* Oldest 52.

† Age 41.

General Results.

1. Of the whole of the 146 cases of acute and subacute rheumatism, only 84, or 57·5 per cent., or one case in 1·73, were free from serious cardiac complication; and of this number only 44, or 30·1 per cent., were entirely free from any signs or symptoms of heart affection, while in 40, or 27·3 per cent., there existed some slight signs or symptoms or both.

2. The number of cases in which some decided form of recent cardiac complication occurred was 53, or 36·3 per cent., or one case in 2·75; while in nine cases, or 6·1 per cent., there was old disease of the heart, making altogether 62 cases in which there was either old or recent cardiac complication, or 42·4 per cent., or one case in 2·3.

In this calculation the whole of the 84 cases referred to above are regarded as having been free from heart affection. If the six cases in which there were slight symptoms and signs be regarded as cases of cardiac complication, the total number of cases of recent heart affection becomes 59, or 40·4 per cent., or one case in 2·4; and the total cases of cardiac complication, old and recent, become 68, or 46·5 per cent., or one case in 2·1.

3. The proportions of cardiac complication varied considerably in the three sets of cases, amounting in those treated at the Royal Free Hospital to 66·6 per cent., or one case in 1·5; while in the cases treated at St. Thomas's Hospital, London Bridge, it was only 30 per cent., or one case in 3·2. The cases treated at the Surrey Gardens were intermediate between the other two series, the heart affections amounting to 45·09 per cent., or one case in 2·2. If the cases of recent cardiac complication only be compared, the proportions are 61·9 per cent., or one in 1·5; 30 per cent., or one in 3·2; and 32·2 per cent., or one in 2·9, respectively.

4. The proportion of all forms of recent cardiac complication did not materially differ in the acute and subacute forms of rheumatism. In the former the serious recent cardiac affections constituted 38·8 per cent., or one case in 2·57; in the latter they amounted to 34·7 per cent., or one case in 2·8; showing them to be more common in the acute than in the subacute cases, but indicating only a slight difference.

5. When, however, the different kinds of cardiac complication in the acute and subacute forms of rheumatism are

compared separately, there is a marked difference in their relative frequency. Thus while the proportion of pericarditis and of peri- and endocarditis in the whole of the cases was 10·95 per cent., and of endocarditis only 25·34 per cent.; in the acute cases the proportion of pericarditis and of peri- and endocarditis was 7·4 per cent., and of endocarditis only 31·48 per cent., and in the subacute cases the proportion of pericarditis and of peri- and endocarditis was 13·04 per cent., and of endocarditis only 21·73 per cent. Thus showing that pericarditis is of more common occurrence in the cases of slighter rheumatism, and endocarditis in those of greater intensity; an inference which is entirely in accordance with clinical experience, pericarditis being often developed in cases in which the general and local rheumatic symptoms are only slightly marked, while the liability to endocarditis increases with the intensity of the rheumatic symptoms.

6. The proportion of cases in which pericarditis or peri- and endocarditis occurred was 10·95 per cent., or one case in 9·1, and that in which endocarditis only occurred was 25·34 per cent., or one case in 3·9, the proportion of the cases of pericarditis being to those of endocarditis only as 1 to 2·3.

7. There was not any marked distinction between the frequency of recent cardiac complication in the two sexes. The proportion of all forms of cardiac affection was in males 37·1 per cent., and in females 35·1 per cent.; and the results are nearly the same when the frequency of cardiac complication in acute and subacute cases separately is compared, in males the percentage being 36·3 and 40·6, and in females 37·5 and 30·5, per cent.

8. Recent cardiac affections are, however, much more common in persons in early life than in older persons. Thus, at 20 years of age and under the proportion of all forms of recent cardiac complication was 44·28 per cent.; while in persons from 21 to 40 years of age inclusive the proportion was 31·34 per cent.; and from 41 to 53 years 11·11 per cent. The oldest person in whom recent cardiac affection occurred was a man 41 years of age.

If the cases of old disease be included in the calculation, the proportion of cardiac affections at the earliest period is still greater, or 52·88 per cent., and at the second period 32·82 per cent.

9. A large proportion of the patients who suffered from both forms of rheumatism had had previous attacks of the disease

before that for which they came under treatment; and this proportion was still more considerable in the cases in which there were cardiac complications, both old and recent. Of the whole of the cases 34·2 per cent. had had previous attacks; while in the patients who had cardiac complications the proportion of previous attacks was 47·1 per cent.

10. In by far the larger number of cases in which recent cardiac complication occurred, the symptoms or signs or both were either commencing or actually present at the time of the patients' admission into the hospital. Thus of the 53 cases, in 44, or 83·01 per cent., the complication then existed, while in only nine, or 16·9 per cent., did the symptoms make their appearance while the patient was under treatment. To this number may probably be added some of those in which slight signs or symptoms or the two combined were observed; for in some of these, and certainly in the six cases of the latter class, it may be inferred that the further development of the cardiac affection was prevented by the treatment pursued.

11. The result in the cases of recent cardiac complication depended very much upon the period at which the patients came under treatment for the rheumatic symptoms, and upon the time which had elapsed after the heart symptoms had made their appearance. In the cases in which the rheumatism was only of short duration at the time of the patients' admission, and where the cardiac affection was very slightly marked at that time or arose during the course of treatment, the evidences of disease generally wholly disappeared before the patients' discharge. When, on the contrary, the rheumatic symptoms had been of long duration before the patients' admission, and the heart complications were then fully established, they remained, in a more or less marked degree, at the time of discharge; and such was of course also the result in the cases in which there was both old and recent disease.

The proportion of cases of recent cardiac complication entirely cured was 41·5 per cent.; of those which sustained only partial relief (this including some cases in which there was also old disease) 54·7 per cent.; and of those in which the attack proved fatal 3·7 per cent. In the fatal cases, two in number, there was in both pericarditis and old valvular disease with pneumonia and pleuritis, and in one case renal disease.

12. The subsidence of the rheumatic symptoms was followed in several cases by the appearance and gradual deve-

lopment of anæmic murmurs at the base of the heart, and especially in the course of the pulmonary artery, accompanied often by murmurs in the arteries and veins of the neck. These murmurs were heard in cases in which there were no evidences of cardiac complication in some cases, but in others they succeeded to endocarditic murmurs. In nine out of ten cases in which they are specially mentioned in the reports they were heard in females, and in the tenth the patient was a delicate boy æt. 14.

They usually increased in intensity for a few days, and then gradually subsided, disappearing entirely before the patients' discharge. If at their period of greatest intensity it was not always easy or possible to decide as to their precise seat, it became quite clear, as they subsided, that they were developed at the pulmonary orifice or in the course of the pulmonary artery.

Note in reference to the frequency of Cardiac Complications in Cases of Acute and Subacute Rheumatism.

The proportion of cardiac complications which is shown to have occurred in these series of cases of rheumatic fever is very large; and will probably be thought greater than that which usually obtains, by those who have never subjected the cases they have treated to a careful statistical analysis. It is not, however, materially different from the results which have been arrived at by various other physicians after careful observation and calculation. Dr. Fuller,* in his work on rheumatism, has devoted much attention to this branch of the subject, and has collected various observations of his own and from the writings of others to illustrate it. Thus he shows that of 379 cases of acute and subacute rheumatism treated by the physicians of St. George's Hospital under his own observation, 139 may be inferred to have had some form of recent cardiac complication, or 36·6 per cent., or one case in 2·72 cases, and 48 to have had some form of old-standing heart disease, or 12·6 per cent., or one case in 7·89, making a total of 187 cases of old or recent cardiac complication, or 49·3 per cent., or one case in 2·02. This is almost precisely the proportion of recent cardiac complication here deduced, but shows a larger proportion of cases of old-standing disease. As I have before remarked, I think it probable that some of

* 'Rheumatism, Rheumatic Gout, and Sciatica,' 3rd ed., 1860, p. 257.

my own cases of old cardiac disease complicated by rheumatism, may, when the rheumatic symptoms were only slight, have escaped enumeration among the rheumatic cases.

Dr. Barclay, in a paper in the 'Medico-Chirurgical Transactions,'* states that of 152 cases of acute rheumatism treated at St. George's Hospital, there occurred 67 cases of peri- and endocarditis and old disease, or 44·1 per cent., or 1 case in 2·2, and 21 cases of doubtful cardiac complication, or 13·8 per cent.; or, taking the two series together, 57·8 per cent., or 1 case in 1·7; while of 178 cases of subacute rheumatism 20 presented some form of cardiac complication, or 11·2 per cent., or 1 case in 8·9. The total proportion of cardiac complication in all the cases of acute and subacute rheumatism was therefore 32·7 per cent., or 1 case in 3, and, including the doubtful cases, 39 per cent., or 1 case in 2·5.

Dr. Fuller has also given a table of the proportion of cardiac complications in 588 cases, some of them collected by himself at St. George's Hospital, and others reported by Dr. Budd, Dr. Latham, Dr. Taylor, and M. Bouillaud, showing that the proportion of cardiac affection varied in the practice of these different physicians from 57·01 per cent., or 1 case in 1·71, in the cases recorded by M. Bouillaud, to 48·03 per cent., or 1 case in 2·06, in the cases treated at St. George's Hospital; the mean of the cases being 52·04 per cent., or 1 case in 1·91.

In my own observations the proportion of cardiac complications is only slightly greater in the acute than in the sub-acute cases; and, if to the whole series the six doubtful cases be added, the result is still below the proportion thus inferred by Dr. Fuller as obtaining in acute rheumatism only.

In a recent report of the London Hospital,† it is stated that of the patients admitted with the rheumatic fever, nearly 90 per cent. had already acquired cardiac mischief from previous attacks or before admission. In 5 per cent. cardiac complication occurred while the patients were under treatment, and 5 per cent. remained free.

The proportion of the cases of pericarditis and of peri- and endocarditis in my observations is less than that given by Dr. Fuller from the cases treated at St. George's Hospital, and deduced from the other statistics which he has collected. This may be in part due to the care exercised by

* Vol. xxxv. 1852, p. 1.

† 'Clinical Lectures and Reports,' vol. ii. 1865.

myself that only those cases should be reported as instances of pericarditis which had presented characteristic signs of exocardial mischief. It is quite possible that some cases in which the signs were doubtful may have been numbered with the cases of endocarditis only.

The difference in the proportion of cardiac affections in the cases treated at the Royal Free Hospital, at St. Thomas's Hospital, London Bridge, and at the same institution at the Surrey Gardens, cannot be explained by differences in the course of treatment pursued. It is true that in the first series of cases the most common treatment was with salines and colchicum, and that in the latter the more purely alkaline remedies were used; but there was no constant rule of this kind followed; and had there been, as in by far the largest number of cases the cardiac affections had already commenced before the patients came under treatment, the comparative frequency of cardiac complications in the different series could not be so explained.

The larger proportion of heart affection in the cases treated at the Royal Free Hospital was indeed doubtless due to the severity of the cases, and the long period which had often elapsed before they came under treatment. During the time that most of the cases treated at London Bridge were collected, a selection of the cases applying for admission was made; certain cases, and these the more severe and typical, and therefore the more likely to be complicated, being placed in the clinical ward for purposes of tuition; while the remainder were distributed over the ordinary wards; a plan which would obviously tend to lessen the proportion of severe cases in the latter, in which my observations were collected. The cases treated at the Surrey Gardens are chiefly such as arise in the neighbourhood, and, being admitted daily and without any special selection, doubtless afford a fair average for analysis.

